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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 08/835,625
Filing Date: April 09, 1997
Appellant(s): MOLL, EDWARD W.

Scott Slomowitz
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/21/05 appealing from the Office action mailed 6/15/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appellant's Brief dated 2/7/01,

Examiner's Answer dated 4/23/01,

Order Remanding to Examiner dated 7/21/02,

Examiner's Answer dated 10/1/02,

BPAI Decision dated 3/31/04.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,474,082	JUNKER	12-1995
5,594,849	KUC ET AL	1-1997
4,949,726	HARTZELL ET AL	8-1990
5,325,133	ADACHI	6-1994

Smotroff, M. "The Other 90% Technologies Inc. Breaks Through the Thought Barrier with MindDrive" Business Wire, s1p1, (Jun. 16, 1995)

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 4, 9, 12, 15, 17, 21, 38, 40, 51, 55, and 67-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** [Business Wire, s1, p1, 6/16/95].

For claim 1, the apparatus for controlling a computer operation based on at least one stimulus sensed form a user taught by **Junker** includes the following claimed subject matter, as noted, 1) the claimed stimuli input means is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting at least one stimulus being caused by the thought of the user, 2) the claimed computer having an operating system is met by the control system (No. 29) having an operating system (No. 31) for processing said at least one stimulus to produce a function control signal to control the operation of the operating system without requiring the user to manipulate the user controls, 3) the claimed function selection means comprising a memory is met by the data store (No. 19) in which multiple brain-body signals are stored with each sample from the user. However, as for the identification means there is no evidence that the stimuli are compared to stored stimuli to identify a corresponding control function for a computer. Junker does store previous stimuli in connection with the control functions and upon sensing stimuli uses this stored data to perform the control. The specific comparison is not set forth in Junker.

The "mind-control" software described in the Smotroff reference is a software program that enables a user to control a computer program using a finger-mounted sensor that monitors heart, temperature, blood-pressure volume, and electrical activity in the brain and transmits that information to an interface that plugs into a PC-compatible computer, which analyzes the data it receives and translates it into computer signals. The MindDrive software recognizes the distinctive signals produced by different mental activity. This is plain evidence that signals have been recognized by

computer software and translated into information that the computer can recognize. Logically, the computer for later reference stores these stimuli patterns and the control functions are enacted based on the previously observed stimulus.

The system taught by Smotroff introduces a type of link between brain activity and computer control. This type of control is similar to the primary reference in that Junker also uses the sensing of brain activity to control a computer. The Smotroff reference compares brain stimuli to stored stimuli and performs the corresponding function. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate storing the data as computer functions similar to MindDrive for the purpose of utilizing a standard operating system that easily recognizes different input for different computer control.

For claim 4, the claimed auxiliary stimuli input means for providing additional or alternative stimuli inputs from the user is met by the EEG and EMG biopotentials of Junker that are correlated to control of the device.

For claim 9, the claimed communicating means coupled to the computer is met by the processing unit (No. 30) and the input/output bus (No. 57) of Junker that communicates information pertaining to the user's thoughts.

For claim 12, the claimed designating means coupled to the function selection means is met by the menu bar (No. 60) seen in Figure 6 of Junker that designates particular representations of the different stimuli.

For claim 15, the claimed conditioning means for conditioning the stimulus is met by the amplifier and filter system (No. 24) that amplifies and band pass filters the brain-body signals.

For claim 17, the claimed database for storing inaccuracies is met by the data store (No. 19) that stores the current sample of the input signals and vector quadrature values corresponding to the previously stored control signals as detailed in the explanation of the phase-locked loop program to set a control frequency selected by the user.

For claim 21, the claimed stimuli selection means is observed in Figure 5 that depicts acceptance criteria (magnitude, phase, frequency shift) to form previously stored user stimuli.

For claim 38, the claimed means for detecting coactive stimuli is met by the multiple input devices such as the EEG electrodes (No. 22) and the other input devices (No. 20) such as the keyboard, mouse, and other input means.

For claim 40, the claimed means for detecting sequential stimuli is met by the control signal generation program that reads sequential sampled brain-body signals (Step 404) through a series of iterations, from one up to 1600.

For claim 51, the claimed bodily communication means to provide for a communication path for at least one stimulus between the user's brain and body part is met by the aforementioned electrodes (No. 22) that comprise a communication channel between the operator's brain-body signals and various external devices (No. 55) such as a wheel chair, cursor control, sailboat or other ambulatory devices.

For claim 55, the apparatus for controlling computer operation from one or more stimuli sensed from the human body taught by Junker includes the following claimed subject matter, as noted, 1) the claimed detecting means for detecting stimuli is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting stimuli to produce stimuli, 2) the claimed selecting means for selecting one or more of said detected stimuli is met by the user input devices (No. 20) such as the keyboard, mouse, and others. However, there is no mention of an explicit identification means for identifying one or more said detected stimuli or receiving means for receiving a function signal.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 67, the apparatus for controlling a computer operation based on at least one stimulus sensed from a user taught by Junker includes the following claimed subject matter, as noted, 1) the claimed stimuli input means is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting at least one stimulus being caused by the thought activity of the user, 2) the claimed computer having an operating system is met by the control system (No. 29) having an operating system (No. 31) for processing said at least one stimulus to produce a function control signal to control the operation of the operating system without requiring the user to manipulate the user controls, 3) the claimed function selection means comprising a memory is met by the data store (No. 19) in which multiple brain-body signals are stored with each sample from the user. However, as for the identification means there is no evidence that the stimuli are compared to stored stimuli to identify a corresponding control function for a

computer. Junker does store previous stimuli in connection with the control functions and upon sensing stimuli uses this stored data to perform the control. The specific comparison is not set forth in Junker.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 68, the apparatus for controlling computer operation from one or more stimuli sensed from the human body taught by Junker includes the following claimed subject matter, as noted, 1) the claimed detecting means for detecting stimuli is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting stimuli to produce stimuli, 2) the claimed selecting means for selecting one or more of said detected stimuli is met by the user input devices (No. 20) such as the keyboard, mouse, and others. However, there is no mention of an identification means for identifying the stimuli as corresponding to a function and a receiving means for receiving a function control signal to control the computer operation.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 69, the apparatus for controlling a computer operation based on at least one stimulus sensed from a user taught by Junker includes the following claimed subject matter, as noted, 1) the claimed stimuli input means is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting at least one stimulus being caused by mental activity of the user, 2) the claimed computer having an operating system is met by the control system (No. 29) having an operating system (No. 31) for processing

said at least one stimulus to produce a function control signal to control the operation of the operating system without requiring the user to manipulate the user controls, 3) the claimed function selection means comprising a memory is met by the data store (No. 19) in which multiple brain-body signals are stored with each sample from the user. However, there is no identification means for comparing the stimulus to identify a function control signal.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

For claim 70, the apparatus for controlling computer operation from one or more stimuli sensed from the human body taught by Junker includes the following claimed subject matter, as noted, 1) the claimed detecting means for detecting stimuli is met by the electrodes (No. 22) coupled to the user (No. 10) for detecting stimuli to produce stimuli, 2) the claimed selecting means for selecting one or more of said detected stimuli is met by the user input devices (No. 20) such as the keyboard, mouse, and others. However, there is no mention of an identification means for identifying the stimuli as corresponding to a function and a receiving means for receiving a function control signal to control the computer operation.

The claim is interpreted and rejected for the same reasons and rationale as is mentioned in the rejection of claim 1 above.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** as applied to claim 1 above, and further in view of **Kuc et al.**

For claim 2, the combination of references includes the claimed subject matter as noted in the rejection of claim 1 above. However, neither reference is there biomagnetic stimuli input means.

The biomedical magnetism imaging apparatus and method taught by Kuc et al performs biomagnetic imaging to determine the location and intensity of current sources within a subject by sensing the magnetic field within the subject. This is accomplished using a number of Superconducting Quantum Interference Devices (SQUIDs) that are fed magnetic field information using pickup coils (No. 4). One great advantage of this invention is the fact that fewer pickup coils and SQUID magnetometers are needed to gather needed information in a lesser amount of time than previous biomagnetometers. Also, input from multiple dipoles can be displayed simultaneously.

As the system of Junker utilizes bio-imaging means to achieve its purposes, it presents the perfect platform onto which an imaging system such as Kuc may be applied. As EEG and EMG signals are already gathered, the MSI data could easily be examined for the same purposes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate and MSI system similar to Kuc into the brain-body actuated system of Junker for the purpose of gathering vital information using fewer pickup coils in a lesser amount of time.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** as applied to claim 1 above, and further in view of **Hartzell et al.**

For claim 18, the combination of references above includes the claimed subject matter as discussed in the rejection of claim 1 above. However, one feature that neither reference teaches is that the apparatus can be used by a plurality of users. Also a database for storing unique stimuli for respective users is also not included.

The brainwave-responsive apparatus taught by **Hartzell** teaches an apparatus that is for use with one or more subjects simultaneously for causing an output device to perform productive functions. The system consists of one or more EEG detectors (Nos. 10a-n) each having input lines (No. 12) from a plurality of user. The EEG detectors are designed to generate output signals corresponding to different brain waves to provide signals or actually controlling an output device (No. 30). The EEG devices also store unique stimuli depending on the user's brainwaves onto conventional strip chart recorders or magnetic tape. One advantage of this system is the fact that a productive function is performed using empathy training whereby two or more subjects may be trained to produce theta waves, either simultaneously or synchronously. Also elderly subjects can be trained to provide beta brainwaves on command.

Since both Junker and Hartzell et al both pertain to brainwave controlled apparatus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the system of Junker to be used by a plurality of users and for storing user unique stimuli for the purpose of accomplishing and recording productive tasks through the use of simultaneous or synchronous activation through multiple users. Also, the benefits to the elderly and children should not be overlooked.

4. Claims 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Junker** in view of **Smotroff** as applied to claim 1 above, and further in view of **Adachi**.

For claim 44, the combination of references above includes the claimed subject matter as noted in the rejection of claim 1 above. However, the reference does not cite localization means for identifying locations in the source of said stimulus.

The device for measuring a retina reflected light amount and a gaze detecting apparatus using the same taught by Adachi includes a series of measuring devices (Nos. 11-14) are fixedly arranged at four corner positions of a monitor device. Each device includes a laser (No. 111), semitransparent mirror (No. 113), and charge couple device (CCD) (No. 114) that receives infrared rays emitted by the laser and reflected by the face of the person. An intersection point P among all four devices indicates the location and orientation of the pupil of the person. The retina characteristics are continually monitored to calculate the differing pupil position and displacement angles. The claimed localization means is met by the display device (No. 4) of Adachi that identifies on the display the location in the user of the source of the stimulus. One obvious application of this technology is the control of a cursor on a computer monitor in lieu of the up- and down- keys of a keyboard. This particular reference combines a high level of accuracy at a decreased cost from other retina position detectors.

Since all three references pertain to biologically inputted devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a means for detecting movement of the user's eye to initiate a control signal for

the purpose of using the eye as an easy and inexpensive way to manipulate the cursor controller around the monitor output.

For claim 45, the aforementioned measurement devices also meet the adapting means for they adapt the display to change in response to a change in the location (eye movement) of the source.

(10) Response to Argument

The Examiner will attempt to address all the appellant's concerns regarding perceived deficiencies in the Final Rejection as they apply to this particular case.

Regarding Paragraph I(a), the appellant claims that the Examiner erred in concluding that Junker shows all the elements of a number of claims except for the identification means. The appellant goes on to state that the prior Decision on Appeal concurred in that the Junker reference does not disclose the function selection means. In order to answer this, it appears the Examiner will have to elaborate further on the operating system (No. 31) and how it relates to the data store (No. 19). The operating system of Junker contains a background loop processor (No. 35) and a foreground loop processor (No. 39) that are unique to the control system of the reference. Said background loop processor enables the user to produce control signals at certain reference frequencies that the user can choose from a range of selectable frequencies. The phase-locked loop (No. 34) permits the control system to track the predominant frequencies of the stored brain-body signal within each selected signal reference frequency band. The foreground loop processor uses said brain-body signal as a basis

for the presentation of various audio and visual feedback to the user. Different visual displays may be incorporated. Further, the foreground loop processor permits the user input devices, to be used to select various application programs for execution. These include a play music program, computer game programs, cursor control programs, and mouse programs (Col. 7, Lns. 30-42). Now returning to the claimed invention with this in mind, it strikes the Examiner as how similar this operating system in function is to the description of the claimed function selection means. A correspondence is certainly made between the reference frequency and the selected function. Also, a memory or data store (No. 19) is used in conjunction with said foreground loop processor in order to enable the user to select which function is to be performed. The appellant continues to stress that their claimed invention does *not* use biofeedback to manipulate any pointer or cursor in the operating system (Appeal Brief, p. 2). The Examiner contends: That is not the point. The pertinent point is that the system is in fact able to select a function based on a stored brain-body signal that corresponds to a reference frequency the user has selected. Whether this is called "biofeedback" is immaterial in that it performs the same function as the claims.

Regarding Paragraph I(b), the Appellant continues to fault the Examiner for previously considering the Smotroff reference or the Dilts patent in a previous Information Disclosure Statement. As to whether the Examiner erred in not citing them earlier is not the point of the outstanding final rejection or the current Examiner's

Answer, the Examiner would rather argue the points of the combination of references as they now stand.

The Appellant states that Smotroff "often uses the word 'thought' and paints a picture to entice potential customers to perceive MindDrive as having the capability to detect particular thoughts for any type of control" (Appeal Brief, p. 17). How this statement differs from the hope and promise of mind reading presented by the Applicant is still a mystery to the Examiner. The Appellant then continues at length as to how the Dilts reference (not used anywhere in the Final Rejection) differs from the claimed invention in that the Dilts reference transmits the time rate of change information, how it is identified as a loop-structured system, how there is no evidence of pre-storing biological states or electrodermal stimuli, and more importantly how there is no identification means coupled to a function selection means that compares the stimulus to identify a function control signal corresponding to at least one stimulus (Appeal Brief, p. 19).

The presence of pre-storing user stimuli and a function selection means has already been addressed above in relation to the Junker reference. As to the remainder of the argument the Examiner is struck as to how misguided their response appears. The claimed invention recites an "identification means...for comparing said at least one stimulus to said correspondence to identify a function control signal corresponding to said at least one stimulus". Nothing regarding time delay, nothing regarding time rate of change information or time rate of readjustment action. The claimed function selection means has now used a pre-stored brain-body signal to send a desired function control

signal as recited in the Junker reference. All that is now needed is to identify, according to the claim, the proper function control signal that is then sent to the operating system of the computer. For this we go to the Smotroff disclosure that states, in part, "[the] small control console receives signals from your thoughts, which are transmitted from your mind to the **finger sensor** [and] interprets these various thought signals and directly moves the desired object or image on screen". This simple statement in conjunction with the above reference at the very least teaches a one-to-one correspondence between the thought signal and the action carried out on the screen. That is, there must be *some* type of identification carried out either in the hardware or software of the computer in order to carry out the "thought" signal the user has sent to the operating system. This introduces a type of link between the brain activity and computer control, which is similar to the primary reference. The computer, as well as any computer sold in the marketplace, utilizes some type of operating system that identifies received control signals and carries them out on the screen or whichever output device. You type the letter "a" on a keyboard; the computer then identifies this signal as an "a" signal and the letter "a" is then presented on the screen. You move the mouse left or right; the computer then identifies this signal as a pointer-moving signal and then moves the pointer in the prescribed direction. Smotroff happens to use thought signals in order to effect these output signals, but the identification process is still obviously present. The Appellant contends with the statement that "stimuli patterns" are not even mentioned in Smotroff (Appeal Brief, p. 20). The Examiner replies that this

is merely a matter of semantics and that the pre-stored brain-body signals of Junker meet this claimed subject matter.

Regarding Paragraph II, the Examiner finds no conflict in combining the Kuc reference with the combination of references above. The Examiner, like any other sensible person, realizes that EEG and EMG inputs as introduced by Junker are not the only methods that biological signals may be gathered. After a proper search, the Examiner's suspicions were confirmed when he found a reference that performs magnetic imaging to determine the location and intensity of current sources within a subject for providing sensing signals. As this is a further method of extracting biological inputs, it was judged a proper combination with the references above.

Regarding Paragraph III, as the Hartzell reference clearly generates output signals that correspond to different brain waves to provide signals or controlling an output device, it is at the least compatible in function and operation to the above references. Also, as the unique stimuli corresponding to the user are recorded, this is certainly suggestion that a user can be identified.

Regarding Paragraph IV, the Adachi reference plainly provides a location of the user stimulus and is therefore considered an obvious variation on the art above. The reference is able to locate the source of the stimulus, in this case an eye; therefore, a localization is clearly performed.

For the above reasons, it is believed that the rejections should be sustained.

(11) Related Proceeding(s) Appendix

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner's answer are provided herein.

Respectfully submitted,

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